

Sustainable construction

April 2004

Brief



dti

SUSTAINABLE CONSTRUCTION BRIEF 2

April 2004

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What is Sustainable construction?

The UK strategy for more sustainable construction, Building a Better Quality of Life, suggests key themes for action by the construction industry. These are:

- design for minimum waste
- lean construction & minimise waste
- minimise energy in construction & use
- do not pollute
- preserve & enhance biodiversity
- conserve water resources
- respect people & local environment
- monitor & report, (ie use benchmarks)

Most of these points simply make good business sense eg minimising waste increases efficiency. Sustainability is of increasing importance to the efficient, effective & responsible operation of business.

Key Strands

environmental responsibility
social awareness
economic profitability

For More

DEFRA has overall government lead on sustainable development, www.defra.gov.uk & www.sustainable-development.gov.uk

Key documents

The Construction Industry: Progress towards more Sustainable Construction

(Nov 2003)

This report by the Sustainable Construction Task Group (now known as Sustainability Forum) reviews 3 years of encouraging greater sustainability

Better Buildings Summit - Issues Paper (Oct 2003)

This paper provides some context for current thinking on 'Better Buildings' including some best practice, it looks at barriers to progress & poses questions to stimulate deliberation & debate

Sustainable Construction Brief (July 2003)

This short document highlights current issues & key background information on achieving more sustainable construction (the document you are reading is the 2nd iteration of the Brief)

Demonstrations of Sustainability (May 2003)

This reviews the Rethinking Construction demonstration projects addressing sustainability. Those featured provide tangible evidence of the construction industry's adoption of more sustainable practices. See also www.constructingexcellence.org.uk

EU legislation study report (Jan 2003)

Industry consultation revealed that a key concern is awareness of EU directives' effect on sustainable construction. DTI commissioned this study of forthcoming EU legislation



For More

see www.dti.gov.uk/construction/sustain

Key documents

(continued)

Reputation, Risk & Reward – the business case for sustainability

(Jan 2002)

The Sustainable Construction Task Group commissioned this report to demonstrate the business case for action



Building a Better Quality of Life: report on progress 2001

(Oct 2001)

This report reviews industry & government action following the release of Building a better quality of life. A stakeholder review & next phase workshop (March 2002) highlighted key points: the need for more information on forthcoming EU directives & need to promote the business case for more sustainable construction



Building a Better Quality of Life – a strategy for more sustainable construction

(April 2000)

Following consultation with industry this strategy was released recommending key action themes designed to kick-start the adoption of more sustainable practices in the construction industry



A Better Quality of Life: a strategy for sustainable development for the UK

(May 1999)

This national strategy suggested 10 guiding principles for action & proposed headline indicators to identify key issues relating to quality of life. Government annually publishes headline indicators & reports on action proposed & taken, see www.sustainable-development.gov.uk

For More

see www.dti.gov.uk/construction/sustain

Sustainability Forum & Constructing Excellence

Organisational structure

The Sustainability Forum is the new name for the Sustainable Construction Task Group. This Group, hitherto chaired by Sir Martin Laing, had been charged by the DTI's Construction Sector Unit to investigate & make recommendations on improving take up of sustainable development within the construction & property sectors. It is now chaired by Ian Coull of Slough Estates plc.

The Strategic Forum is an industry led, strategic level committee, whose membership includes construction clients, construction suppliers and training organisations. It is tasked with implementing Accelerating Change & Rethinking Construction principles for the construction industry. In December 2003, the chairman of the Strategic Forum, Peter Rogers, agreed that the Sustainability Forum would in future report to the Strategic Forum.

Constructing Excellence is a limited company, chaired by Peter Rogers, and brings together Rethinking Construction & the Construction Best Practice Programme under the one umbrella to deliver construction industry reform. It is the successor body to both of these organisations & its remit is to continue implementing the Rethinking Construction initiative through a well developed network of best practice clubs & demonstration projects across England & Wales. It is a first point of contact for information & activities on construction improvement techniques.

Rethinking Construction is the banner under which the construction industry, its clients & the government are working together to improve UK construction performance. Rethinking Construction partners aim to showcase innovations in both products & performance through Demonstration Projects & highlight best practice available within the industry. They also will seek to encourage the industry & its clients to adopt the principles of rethinking construction to their mutual benefit.

Accelerating Change recognises sustainable construction as a cross cutting theme.

Constructing Excellence as an organisation, reports to the Strategic Forum. From April 2004, the Secretariat for the Sustainability Forum will be provided by Constructing Excellence. The Sustainability Forum retains its role of providing independent advice to the DTI.

The proposed membership of the Sustainability Forum includes stakeholders from government, environmental groups & constructors.



For More

see www.constructingexcellence.org.uk

Sustainability Forum & Constructing Excellence

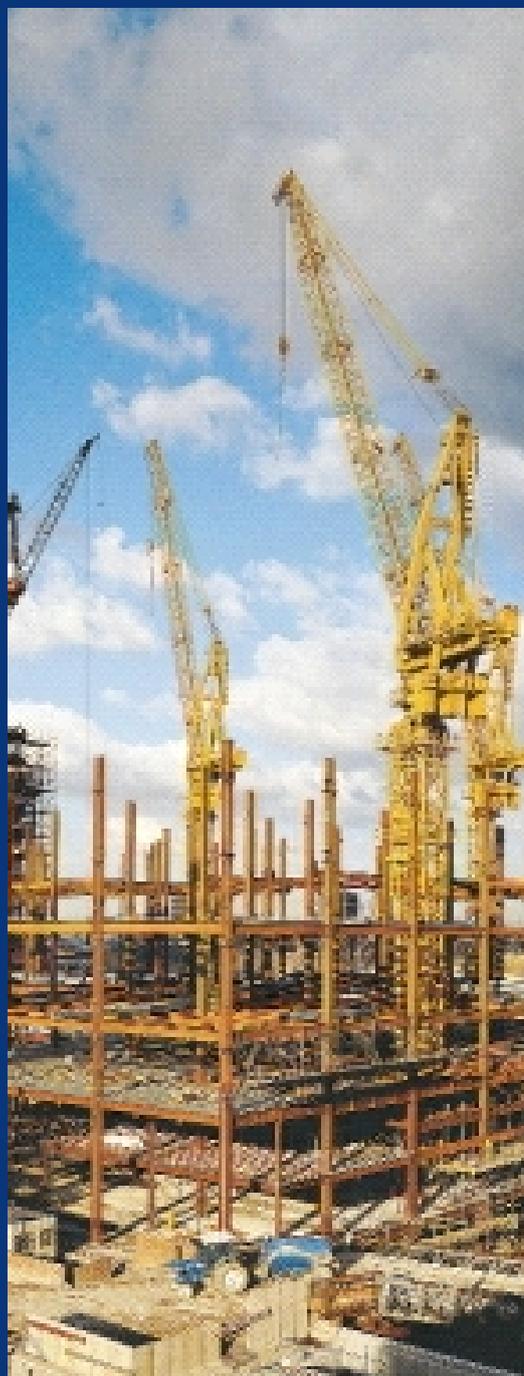
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Work of the Sustainability Forum

The group aims to provide leadership, inspiration & influence other bodies. Advise: DTI, Constructing Excellence & the Strategic Forum on sustainable construction; Constructing Excellence on best & worst practice from across industry; Identifying best & worst practice from Constructing Excellence demonstrations & regional groups & communicating it; & gaps in & barriers to progress & suggesting solutions.

Early in 2002, the Task Group published the report Reputation, Risk & Reward which examined the business case for sustainability in the UK property sector. It makes clear the advantageous long term business sense behind being more sustainable. Being sustainable is as much about efficient profit-orientated practice & value for money as it is about helping the environment. Subsequently (March 2002) the government hosted the Sustainable Construction Stakeholder Review & next phase workshop, which was attended by leading figures in sustainability & construction. That event identified proving & disseminating the business case as one of the key issues to be addressed in order to facilitate a more sustainable construction industry. The Sustainable Construction Task Group was the mechanism for tackling this issue.

More recently, the Group prepared the main discussion Paper (the "Issues Paper") for the Better Buildings Summit on 21st October 2003.



For More

see www.constructingexcellence.org.uk

Better Buildings Summit

The Better Buildings Summit was held on 21st October 2003, at the QE2 conference centre & DTI conference centre. The Summit was a targeted, invitation-only event offering a very significant opportunity for high-level debate. 190 senior executives attended from across the construction & energy industries. The summit resulted from a commitment in the Energy White Paper. The theme of the summit was delivering better, greener, buildings, faster. The summit aimed to win the active support of industry & clients to create better, more sustainable buildings - both new & refurbished. It particularly concentrated on:

- Energy efficiency; Renewable energy;
- Related issues (eg minimising waste; conserving water).

The Summit aimed to:

- Examine Best Practice; Identify clear action routes [and question existing];
- Review government role & policy framework;
- Review supply chain/industry process as delivery mechanism;
- Consider what more we can do - as government; as industry;
- Consider how we can work together to decarbonise building stock - what do we need to do?

Deputy Prime Minister John Prescott MP, Secretary of State Margaret Beckett MP & Secretary of State Patricia Hewitt MP opened the summit with their thoughts on more sustainable buildings. The day comprised a number of keynote speeches followed by an expert panel session. The event was chaired by Sir John Harman (Environment agency) & the impressive array of expert participants included: Peter Head (FaberMaunsell), Robert Napier (WWF) Lord Foster (Foster & partners), Margaret Ford (English Partnerships), Ian Russell (Scottish Power), Roy Harrison (CPA), Peter Rogers (the Strategic Forum), Sir Stuart Lipton (CABE). An afternoon of high level debate included 4 workshops on building services, building fabric, investment and design. The day concluded with a ministerial panel session, chaired by John Humphries (BBC News), with the Deputy Prime Minister John Prescott MP & Secretaries of State Patricia Hewitt MP & Margaret Beckett MP.



Better Buildings Summit

continued

John Prescott's Announcements

£5bn housing allocation to drive forward the Government's commitment to affordable housing, key workers & decent homes over the next 2 years.

Raising national regulatory standards for water conservation by 2005.

The next phase of the £1bn key worker housing programme which extends the scheme to include social workers as well as more assistance to those looking for family homes.

A follow up Urban Summit to be held in the Autumn 2004.



Patricia Hewitt's Announcements

Guidance shortly to be released setting out key minimum policy standards for procuring built environments by public sector clients.

Progressing guidance for planners on the need for energy infrastructure arising from the Energy White Paper.

Producing guidance for regional bodies (RDAs & Regional Assemblies) on the development of strategic approaches to energy issues.

Progressing the establishment an academic Centre for Excellence for research into how best to accommodate higher levels of distributed generation on the grid.

A Foresight study on further research needed on the development of Low Carbon Communities.

Margaret Beckett's Announcements

Formation of a Sustainable Buildings Task Group to pinpoint ways in which sustainable development can be improved in new & existing buildings on key issues including water, energy, waste & building materials.

A new programme to train up to 70,000 heating installers so that when higher boiler efficiency standards are introduced in 2005 there will be the resources to install them.

Launch of the Carbon Trust's "Solid Wall Insulation Challenge", an initiative to address the adequate insulation of some of our older housing stock.

Sustainable Buildings Task Group

The Group is tasked with identifying specific, cost-effective, improvements in the quality & environmental performance of buildings which industry can deliver in both the short & long term, together with further actions that Government could take to facilitate faster progress. In order to do achieve this objective, the Task Group will look at four areas where the Government sees a need to significantly improve the quality of buildings to deliver higher standards of environmental performance in support of sustainable development in new communities but also through refurbishment and renewal. These areas are: Water; Energy; Timber & other construction materials; Waste reduction.

The Group will need to consider which mechanisms could best achieve this in the context of current and future regulatory requirements. Among the mechanisms to be considered are:

- contribution the planning system can make to mainstreaming best practice
- role of Government incentives for innovation
- promotion of long term planning for dynamic improvement
- promotion & adoption of best practice, including potential for the use of voluntary agreements
- best means of sharing experience between designers, builders & utilities.

The group is asked that all work & subsequent recommendations should:

- Consider improvements to buildings within the context of creating high quality, well-designed, sustainable places
- Consider improvements to buildings that take account of issues of refurbishment and renewal as well as new build
- Consider matters relating to any regulatory impact assessment that could be required
- Assess the degree of robustness of cost assumptions & consider all cost implications
- Take account of maintenance issues in considering sustainability of buildings over their entire lifecycle

The Secretaries of State have invited the following to serve on the Task Group:

Michael Ankers, Chief Executive,
Construction Products Association

Julian Barwick, Joint Managing Director,
Development Securities

Sheila Button, Board Member,
The Housing Corporation

John Calcutt, Chief Executive,
Crest Nicholson

Ian Coull, Chairman,
The Sustainability Forum

Paul King,
WWF-UK

Paul Noon, Co-Chairman,
Trade Union Sustainable Development Advisory
Committee

Jennie Price, Chief Executive,
Waste & Resources Action Programme

Philip Sellwood, Chief Executive,
Energy Saving Trust

Peter Studdart, Head of Environment & Planning,
Cambridge City Council

Lynne Sullivan, Sustainability Director,
Broadway Malyan

Pamela Taylor, Chief Executive,
Water UK

Bryan Woodley,
UK Timber Frame Association

Terry Wyatt, President,
Chartered Institution of Building Services Engineers

The Office of the Deputy Prime Minister, The Department for Environment, Food & Rural Affairs, The Department of Trade & Industry, The Office of Government Commerce & HM Treasury are also represented on the Task Group at senior official level.

Sector Sustainability Strategies

A number of construction sector sustainability strategies either have been or are due to be published. They aim to develop a common understanding of the issues & present effective & targeted approaches for each sector to contribute to achieving a more sustainable construction industry. Some of the sectors being addressed include: building services, cement & concrete, wood, construction products, housing. Those published include: Society, Sustainability & Civil Engineering (April 2002), Brick: made for generations (Nov 2002), Building a Better Future (steel sector, Dec 2002).

Steel

Building a better future (Dec 2002) is a comprehensive strategy for the steel sector, developed by British Constructional Steelwork Association (www.bcsa.org.uk), Corus (www.corusconstruction.com), Steel Construction Institute (www.steel-sci.org) & Sheffield University (www.shef.ac.uk)

Civil Engineering

led by the Institution of Civil Engineers (www.ice.org.uk) their sector strategy Society, sustainability & civil engineering (April 2002) outlines an approach to making the sector more sustainable & was well-received. ICE is working to integrate it across its sector's working practices

Concrete

BCA & Concrete Centre's interim report (April 2003) aims to improve sector sustainability performance (eg KPIs for British Precast & QPA member companies) & shows how through building design concrete's thermal properties lead to energy efficient structures that save money. see www.bca.org.uk & www.concensus.info

Forestry

Naturally Wood by UK Forest Products Association www.ukfpa.co.uk & A Sustainability Strategy for the UK Sawmilling & Wood-based Panel Industry were launched Feb 2004.

Brick

British Ceramic Confederation (www.ceramfed.co.uk) & Brick Development Association (www.brick.org.uk) published in Nov 2002 a sustainable development strategy, Brick. Made for generations – the case for sustainability

Wales

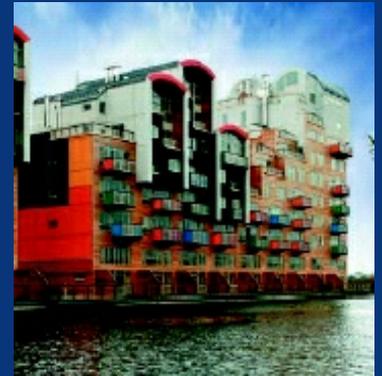
Starting to Construct Differently: a review of consultations & a plan for action towards a sustainable knowledge based construction industry in Wales (Jan 2004) included a sustainable construction action plan & a review of research & best practice. It was authored by Mandix, a sustainable strategy consultancy, Welsh Development Agency, the Rethinking construction Centre for Wales & the Observatory for a Sustainable Knowledge Based region. See www.wda.co.uk & www.rethinkingconstruction.org/rc/regional



Sustainable communities

In February 2003 the Office of the Deputy Prime Minister (ODPM) published the Sustainable Communities Plan. This action programme marks a step change in policies for delivering sustainable communities for all. It also recognises the need for buildings – both individually & collectively – which can meet different needs over time, & that minimise the use of resources. Sustainable construction must play its part in delivering these sustainable communities. The main elements of the plan are: Sustainability (£22bn to improve housing & communities including over £5bn to regenerate deprived areas; a new regional approach to housing policy; & £350m to speed up planning); housing supply step change (£5bn for more affordable homes, including: at least £1bn for key worker housing; support for people who wish to move into home ownership; action on empty properties; new focus on helping people into home ownership); New growth areas (£446m for Thames Gateway with new development agencies; Cabinet Committee chaired by Prime Minister to plan for Gateway development; £164m for three other growth areas); Decent homes (£2.8bn to bring council homes up to a decent standard; £500m to tackle low demand & abandonment; £260m to tackle homelessness; action to tackle bad landlords); Countryside & local environment (guarantee to protect green belt; £201m to improve local environment – parks & public spaces; over 5,000 affordable homes in villages).

A report & update on the Sustainable Communities Plan is early 2004



For More

see www.odpm.gov.uk/communities

Energy

In February 2003 the Office of the Deputy Energy efficient homes help tackle fuel poverty permanently due to reduced heating needs. Energy efficient commercial buildings help businesses become more competitive by reducing operating costs. Being energy efficient helps to reduce CO2 emissions, hence climate change. The latest revision of the Building Regulations (Part L effective from April 2002) results in carbon savings of up to 25% compared to previous levels, providing total savings of 1.4 MtC/a by 2010 - equivalent to around 7.5% of the Climate Change Programme targets. As a result, the average insulation levels in UK dwellings are better than some countries (The Netherlands, Austria, Germany, Belgium), though not as good as some others (Scandinavia, Ireland). The EU Directive on the Energy Performance of Buildings aims to promote the improvement of the energy performance of buildings through cost effective measures. Of course, saving energy in existing building stock is just as important as in the new. Renewable energy, such as embedded photovoltaics, wind farms & the like, have a vital part to play in order to reduce climate change.

A report & update on the Energy White Paper is due early 2004



For More

see www.dti.gov.uk/renewables,
www.dti.gov.uk/energy &
www.odpm.gov.uk

To help, practical guidance on energy saving in existing buildings is provided by documents such as the British Property Federation's Energy Saving Guide www.bpf.org.uk

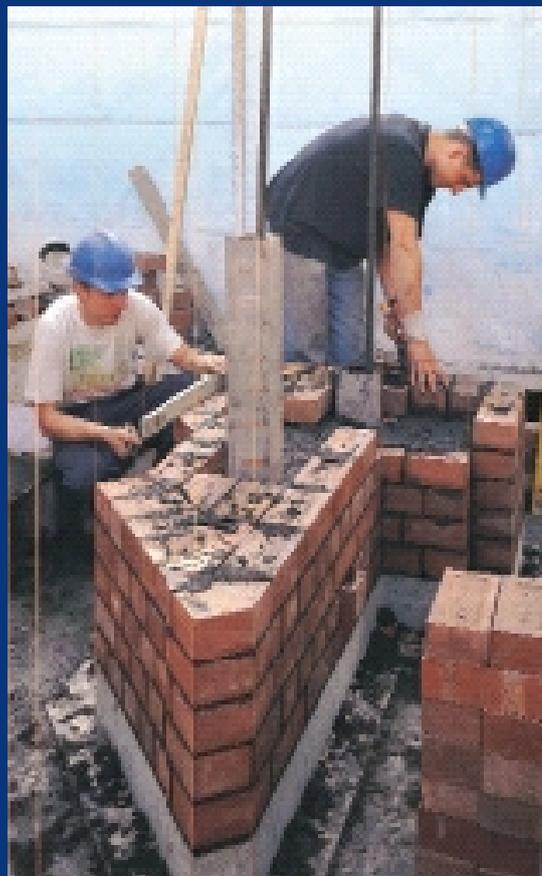
See also www.est.org.uk for Energy Saving Trust & www.thecarbontrust.co.uk for the Carbon Trust

Waste

In February 2003 the Office of the Deputy Waste from construction & demolition materials (& soil) equals 70Mtonnes annually. 13Mtonnes of this consists of material delivered to sites but never used. 90%+ of non-energy minerals extracted in UK are supplied as materials. The industry produces annually 3 times the waste produced by all UK households combined.

EA interpretation of EU definition of waste.

The long term topic of the EA's interpretation of the EU framework Directive on Waste & its impact on industry (especially on the Aggregates & Constriction Products sectors) is being pursued. The EU Commission have put out a consultation paper to member states seeking views on how waste matters can be improved – Defra is responding on behalf of the UK Government, in consultation with the rest of Government.



The Antisocial Behaviour Act (Nov 2003)

This highlights a number of problems including flytipping. The Clean Neighbourhoods Bill (2004) may contain provisions on waste management, including on flytipping & may require construction firms to have site waste management plans.

EU Urban Thematic Strategy

The EU Commission is also considering action under the forthcoming EU Urban Thematic Strategy to provide support to industry using certain mechanisms yet to be agreed with HM Treasury involving distribution of funds from the Landfill Tax.

For More

see www.wrap.org.uk &
www.defra.gov.uk/environment/waste

Government Procurement

Government recognises it must lead by example – public procurement accounts for some 40% of the output of the construction industry. Through Achieving Excellence in Construction, the Government has responded to the cross-industry drive for change & the initiative is acting as a catalyst for government client improvement. The Achieving Excellence initiative requires procurement on the basis of best whole life value using integrated teams & is being supported by OGC through the production of the new Procurement Guidance suite to assist the Government Client. The issue of sustainability in construction procurement is fundamental to the achievement of best whole-life value & is being driven forward by the Achieving Sustainability in Construction Procurement programme. In July 2000, based on the key themes identified by Building a better quality of life, the Government Construction Clients Panel (consisting of representatives with responsibility for procurement from most government bodies) published Achieving sustainability in construction procurement: the sustainability action plan.

This plan outlined continuously improving performance targets to deliver sustainable construction for 3 years. 16 government bodies/ departments adopted the plan. The first phase of the programme ended in March 2003. The programme is now under review to assess its success & to agree follow-up action. Follow-up work on the Achieving Sustainability in Construction Procurement Action Plan will be taken forward under the Estates & Property Management section of the Framework for Sustainable Development on the Government Estate (due for announcement in shortly).

The Senior Officials Policy Group, a cross-departmental policy development group set up by Ministers, has been asked to advise on a set of benchmark/minimum standards for government procurement. These standards will include policy on sustainable procurement. Issues covered will also include the use of recycled materials, energy consumption, green energy sources & other related issues. The Senior Officials Policy Group was set up by Ministers to act as the overriding cross-departmental group responsible for the co-ordination & integration of policy initiatives that impact directly or indirectly on the Government as a client, & in particular on the whole-life procurement of built environments. The SOPG is used as a way to coordinate & integrate various developments.

Procurement is also an issue which the Sustainable Buildings Task Group is examining as part of its work.



For More

see www.ogc.gov.uk

Health, safety & training

There is continuing concern about construction site safety & longterm health of construction workers. Workers' wellbeing, prevention of accidents & prevention of site deaths are important aspects of becoming a more sustainable business. The solutions lie in awareness, good communication, rigourous safety measures & procedures, as well as training. There is a strong link with sustainability's economic strand. It is not good for business to have bad safety record: people may not work for you, people may not employ you; accidents cause delays; & sooner or later it may inspire government to enforce new regulation. Although safety measures & training may have a cost, not looking after employees when these problems are present means an organisation neglects its Corporate Social Responsibility. The short termist argument that workers may be casual staff - so there is no reason to train or maintain when there is a supply of new people to employ - leads to (and may well be the direct cause of) the shortage of skills & failing of recruitment & retention. This is recognised as another major issue for the construction industry, which has economic problems not just for individual businesses but for the whole industry.



For More

see the Health & Safety Executive
www.hse.gov.uk & Construction
Industry training Board
www.citb.co.uk

The other worrying problem of cowboy builders & the Construction industry's image is being addressed by DTI's initiatives Quality Mark & Construction Line, see www.dti.gov.uk/construction

In Context

Global Snapshot

Civilisation has evolved during a period many now regard as of exceptional climatic stability. As the United Nations Environmental Programme's GEO-2000 report points out, the "time for a rational, well-planned transition to a sustainable system is running out fast." In the short term the UK's relative wealth may cushion us from some of the worst consequences of unsustainable production.

However:

- global temperatures are rising faster than ever before recorded, causing extremes in weather systems
- Increasing numbers of the world's population are facing acute shortages of freshwater, slumps in food production, devastating floods for some & disastrous droughts for others.
- climate change, due to carbon dioxide & other greenhouse gas emissions, could see temperatures rise by up to about 6°C this century with sea-levels increasing by up to 0.88 metres. This could lead to 100m people flooded each year in the coastal regions in the developing world. Bangladesh alone could lose one fifth of its land mass.
- Increasing drought & the threat to cash crops in Africa could bring starvation & economic disaster.
- 2003 joined 2002 & 1998 as the hottest years on record (Defra – edigest statistics at: www.defra.gov.uk/environment/statistics/globalatmos/gakf01.htm Feb 2003) & damage from extreme weather events in 2001 reached \$55 billion
- Earths' mean surface temperature is projected to warm 1.4°C to 5.8°C by the end of the 21st century (Climate Change & Biodiversity – InterGovernmental Panel On Climate Change Technical Paper V April 2002)
- burning fossil fuels at present will increase rates greenhouse gases in the atmosphere by 50% within 15 years – risking catastrophic climate shifts.
- Globally by the year 2080 about 20% of coastal wetlands could be lost due to sea level rise (Climate Change & Biodiversity - InterGovernmental Panel On Climate Change Technical Paper V April 2002)
- Over last 10 years, environmental disasters have caused over \$600 billion worth of damage – more than in the previous four decades combined.
- The number of people affected by floods worldwide has already risen from 7 million in the 1960s to 150 million
- Global Snow cover has decreased by 10% since the 60's (Energy White Paper, February 2003)
- 1990s saw around 16 million hectares of forest lost – equivalent to two-thirds of the area of the UK every year
- 30 per cent of our coral reefs have been lost
- Loss of biodiversity. Fish stocks in European waters are near collapse. Soil loss & declining fertility are eroding the viability of agricultural land
- Waste volumes have persistently grown faster than GDP
- The human economy already consumes approx. 50% of the planet's natural production every year.
- worldwide energy consumption has grown by 60% between 1972 & 1999.
- World population passed 6 billion in 2000 up from 4.4 billion in 1980 (PreJohannesburg UN report entitled: Global Challenge, Global Opportunity August 2002).
- World population is projected to rise to 9 billion by 2050
- 15% of the world's population living in high income countries account for 56% of the world's total consumption, while the poorest 40% account for just 11% of consumption.
- A quarter of the world's people have to survive on incomes of less than US\$1 a day. A fifth have no access to health care.
- 1 in 6 Europeans lives in poverty. Regional imbalances in the EU remain a serious concern
- Over 100 million Europeans & North Americans live in cities where the air is unsafe to breathe.
- More than a billion people still don't have access to safe water to drink, & 40% of the world's population is short of fresh water (Achieving a better quality of life February 2003)
- More than 3 million deaths world wide each year are caused by air pollution (PreJohannesburg UN report: Global Challenge, Global Opportunity. 2002)
- Almost 2.5 billion people lack sanitation; & more than 2 billion lack access to modern energy services
- Almost 800 million people in developing countries are chronically undernourished (PreJohannesburg UN report: Global Challenge, Global Opportunity, 2002).
- 23 children die of hunger every minute
- 90 children die every 15 minutes (World Bank Press release April 2003)
- Each minute a woman dies in pregnancy or childbirth, with 99% maternal deaths occurring in developing countries
- More than 10 million children under 5yrs die every year, most are in developing countries (Shaping the Future – World Health Report 2003)
- Overall, 35 % of Africa's children are at higher risk of Death today than they were ten years ago (Shaping the Future – World Health Report 2003)
- More than 100 million children worldwide do not attend primary school (World Development Indicators 2003 – World Bank April 2003)
- While a baby girl born in Japan can expect to live for about 85 years, a girl born at the same moment in Sierra Leone has a life expectancy of 36 years (Shaping the Future – World Health Report 2003 October 2003)

(Source: UN or Forum for the Future unless indicated otherwise)

In Context

UK Snapshot

Under the Kyoto Protocol, the EU has a target to reduce greenhouse gas emissions to 8% below 1990 levels by 2008 –2012 (Defra - Environment in Your Pocket – 2003, Dec 2003). A team of UN experts found that the UK had reduced its greenhouse gas emissions by 12.8% between 1990 & 2000 (Sustainable Development in Government 1st Annual Report, November 2002, December 2003). This means it may be on target (Climate Change Strategy, 2001) to reduce climate change gas emissions by 8% to 12% by 2010. Increases in life expectancy & low birth rates threaten a slowdown in the rate of economic growth, as well as the quality & financial sustainability of pension schemes & public healthcare. We have a disproportionately large 'resource footprint' on the rest of the world. Waste in the UK continues to rise at 3% per year - faster than GDP & faster than in most other nations (Sustainable development in Government 1st Annual Report). People are travelling more. Over the last ten years train use has risen by about a quarter, & bus use by 10%, whilst traffic on the roads has gone up by 77 per cent since 1980. Although since 1990 growth has been at a lower rate than in the previous decade it is still rising. UK airports have seen passengers treble since 1980 & air travel is expected to more than double by 2020 (Department for Transport). Many parts of the country are facing significant shortages of housing: there are around 90,000 homeless households in temporary accommodation, nearly double the number 5 years ago (ODPM).

- Only 34% of people have heard of sustainable development (Defra survey of Public Attitudes to Quality of Life & to the Environment)
- Nine of the UK's 10 hottest years on record have been between the period 1990-2002 (Defra - Environment in Your Pocket – 2003, December 2003)
- CO2 accounts for 85% of the UK's total emissions (Defra - Environment in Your Pocket – 2003, Dec 2003)
- Emissions from road transport increased threefold between 1990 and 2001 (Defra - Environment in Your Pocket – 2003, Dec 2003)

- Usage of the Thames Barrier has increased from once every 2 years in the 1980's to an average 6 times a year from 1998-2003. (Energy White Paper, Feb 2003)
- The energy industry was a source of over a quarter of all EU greenhouse gas emissions in 2001, while the transport sector & the industrial sector accounted for around a fifth each (Defra - Environment in Your Pocket – 2003 Dec 2003)
- Between 1990 & 2001 use of electricity in the UK increased by 22 %, whilst GDP increased by 28%. This suggests that there has been no uncoupling of electricity use from economic growth (Defra - Environment in Your Pocket – 2003, Dec 2003)
- Total traffic increased by 77% between 1980 & 2002, from 277 to 490 billion vehicle kilometres. Most of this growth occurred between 1980 & 1990; since then traffic has increased by 18% (Transport Trends – DfT www.dft.gov.uk Dec 2003)
- In 1999/2001, 60% of cars on the road had only one occupant. On trips for commuting & business, the proportion was 84% (Transport Trends – DfT www.dft.gov.uk Dec 2003)
- Waste in the UK continues to rise at 3% per year, faster than GDP & faster than in most other nations (Sustainable development in Government 1st Annual Report November 2002)
- Total Waste in the UK is estimated to be around 430 million tonnes each year (Defra - Environment in Your Pocket – 2003 Dec 2003)
- About 25.6 million tonnes of household waste were collected in 2001/02, an average of 23.8 kilograms per household per week (Defra - 2001/02 Municipal Waste Management survey, August 2003)
- Household waste accounts for 8 % of all UK waste (Defra - Environment in Your Pocket – 2003, Dec 2003)
- In England, the amount of household waste increased by around 13.5% in total & by 11.5% per person, between 1996/7 & 2001/2 (Defra - Environment in Your Pocket – 2003, Dec 2003). In 2001/2 local authorities reported that around 3.2 million tonnes of household waste (over 12 % of total household waste) was diverted for recycling or composting. (Defra - Environment in Your Pocket – 2003 Dec 2003)
- The overall population of the UK is estimated to have been 59.2 million in 2002, & is projected to increase by 11 % by 2036 (Defra - Environment in Your Pocket – 2003 Dec 2003)
- In 2003 those in the lowest social class have a life expectancy of 7.4 years less than those in the highest social class (Impacts & Trends in Social Exclusion interim report – Social Exclusion Unit)

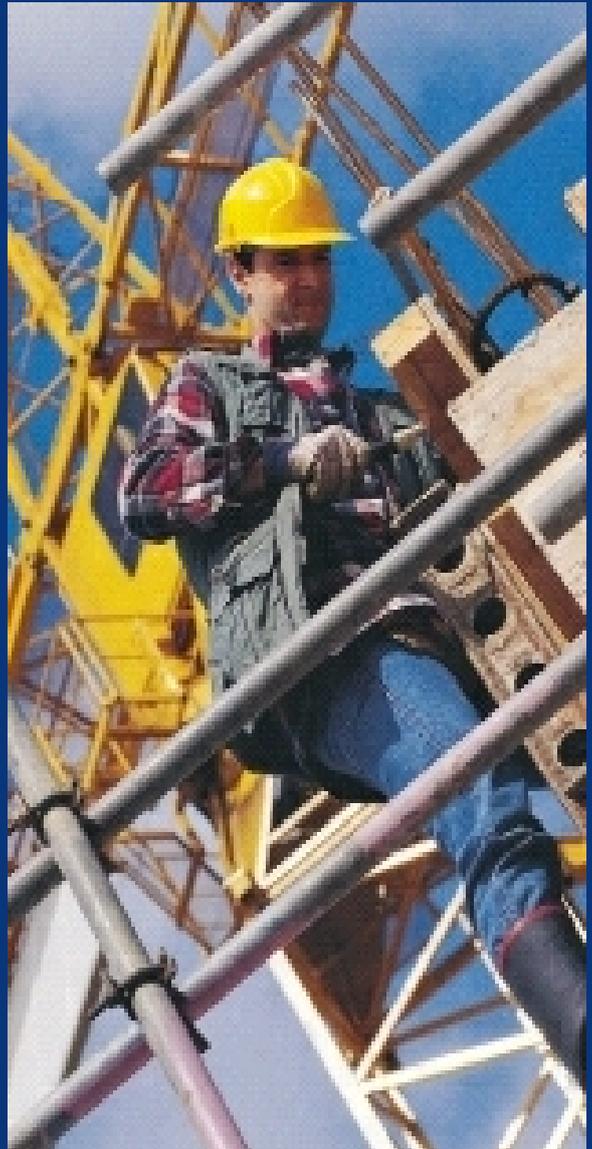
In Context

UK Construction Snapshot

Construction has a huge contribution to make to everyone's quality of life & in enabling the positive impacts of its work to be achieved in a more sustainable manner. Construction outputs alter the nature, function & appearance of the towns & countryside in which we live & work. This infrastructure's construction, use, repair, maintenance & demolition consume resources & energy, & generates waste.

The construction industry employs 1.5 million people, consisting of approx 8% of GDP. The amount of construction materials used annually is equivalent to 6 tonnes per head of population in the UK. Pollution has major sources in the construction process: waste materials; noise, vehicle emissions, contaminant release into atmosphere, ground & water. People issues have a very poor record in construction, especially for health & safety - this results in not only costly lost work days, but sometimes leads to enforcement actions (eg prosecution & site closure). An ageing workforce necessitates the need to attract & retain younger skilled people. Reworking the industry's image is also crucial, as cowboy builders too often sully its reputation.

Energy produced from non-renewable sources & consumed in building services accounts for approx 50% of UK CO₂ emissions, contributing to climate change, consuming non-renewable resources & adding to pollution. Waste from construction & demolition materials & soil equals 70Mtonnes annually. 13Mtonnes of this consists of material delivered to sites but never used. 90%+ of non-energy minerals extracted in UK are supplied as materials. The industry produces annually 3 times the waste produced by all UK households combined.



(Source: DTI)

Defining Sustainable Development

Sustainable development is the process by which we move towards sustainability. Sustainable development focuses on improving the quality of life for all without increasing the use of natural resources beyond the capacity of the environment to supply them indefinitely. Sustainable development is not a new idea. Many cultures over the course of human history have recognized the need for harmony between the environment, society & economy. What is relatively new is the articulation of these ideas, based on science, in the context of a global industrial information society.

Brundtland

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Our Common Future also known as The Brundtland Report, 1987). This definition was endorsed 5 years later at the Earth Summit in Rio de Janeiro

UK Sustainable Development Strategy

The UK Sustainable Development Strategy (May 1999), defines sustainable development as the simple idea of ensuring a better quality of life for everyone, now & for generations to come. It has 4 objectives:

- Social progress which recognises the needs of everyone
- Effective protection of the environment
- Prudent use of natural resources
- Maintenance of high & stable levels of economic growth & employment

The Five Capitals Model

We are consuming our stocks of natural, human & social capital faster than they are being produced or replenished. Unless we control the rate of this consumption, these vital stocks cannot be sustained in the long-term. By maintaining & increasing stocks of these capital assets, we can live off the income, without reducing the capital itself. For this to everyone must manage these capital assets sustainably. There are 5 types of sustainable capital necessary to improve the quality of life.

- Natural Capital: any stock or flow of energy & material that produces goods & services. It includes: Resources - renewable & non-renewable materials; Sinks - that absorb, neutralise or recycle wastes. Processes - climate regulation
- Human Capital: people's health, knowledge, skills & motivation - all needed for productive work. Enhancing human capital through education & training is central to a flourishing economy.
- Social Capital: concerns the structures that help maintain & develop human capital in partnership eg families, communities, businesses, trade unions, schools & voluntary organisations.
- Manufactured Capital: material goods or fixed assets contributing to the production process (rather than output itself) eg tools, machines & buildings.
- Financial Capital: enabling the other types of Capital to be owned & traded. Unlike others, has no intrinsic value - is representative of natural, human, social or manufactured capital eg shares, banknotes.

Sustainable development is the best way to manage these capital assets in the long term. It is a dynamic process through which organisations can begin to achieve a balance between their environmental, social & economic activities.

Defining Sustainable Development

Triple-bottom line

A popular way understanding sustainability is the concept of the triple bottom line of economic, environmental & social accountability. This idea proposes that an organisation's license to operate in society comes not just from satisfying stakeholders through improved profits (the economic bottom line), but by improving its environmental & social performance.

Forum for the Future definition

The Forum for the Future defines sustainable development as a dynamic process which enables all people to realise their potential and improve their quality of life in ways which simultaneously protect & enhance the Earth's life support systems.

The Natural Step Framework

The Natural Step Framework is a methodology developed by an international network of scientists, for successful organisational planning. Action proceeds on the assumption of a future point in time when society is sustainable. The prerequisite to this is an all-encompassing definition of the conditions (known as system conditions) that must apply in any sustainable society. Planning with the help of the Natural Step Framework focuses on initial causes of problems rather than reacting to environmental effects. Investments & measures are selected which can develop the organisation in a sustainable direction for maximum long term flexibility and short-term profitability.

For More

See the International Institute for Sustainable Development
www.iisd.org/sd/principle.asp
for links & resources on the sustainable development principles

A Sustainable Approach

In 1987 the World Commission on the Environment & Development recommended 7 critical actions needed to ensure a good quality of life for people around the world:

- Revive growth
- Change the quality of growth
- Meet essential needs & aspirations for jobs, food, energy, water & sanitation
- Ensure a sustainable level of population
- Conserve & enhance the resource base
- Reorient technology & manage risk
- Include & combine environment & economic considerations in decision-making

These recommendations underscore the need to:

Produce differently: apply concepts of eco-efficiency & sustainable livelihoods to your business.

Increasing efficiency & reusing materials play important roles. Eco-efficient companies & industries need to deliver competitively priced goods & services that improve peoples' quality of life, while reducing ecological impacts & resource-use intensity to a level within the Earth's carrying capacity. The goal is to quadruple resource productivity so that wealth is doubled & resource use is halved. This is known as Factor Four. Because OECD countries are responsible for material flows 5 times higher than developing countries, & world population continues to rise, it will be necessary for OECD countries to reduce their per capita material use by a factor of ten. Implementing Factor Four & Factor Ten strategies will require us to think about the cradle-to-grave impact of all goods & services to make wise choices. It requires a reorientation of industrial economies - reducing the scale of polluting activities & creating new opportunities for entrepreneurs. The new generation of small, medium & micro-enterprises that operate within a sustainable development framework will expand our understanding of appropriate technologies & their contribution to creating sustainable livelihoods.

Consume differently: World consumption expanded at an unprecedented rate in 20th century, with private & public consumption expenditures reaching \$24 trillion in 1998, twice the level of 1975 and six times that of 1950. Consumption itself is not necessarily bad. The issue is the levels, patterns & effects of consumption. The environmental & social impacts of

consumption are being felt at both local & global levels. A useful tool for measuring the extent of our consumption is the Ecological Footprint. It shows how much productive land & water we need to produce all the resources we consume & to absorb the waste we make. Already, humanity's ecological footprint may be over 30 percent larger than the ecological space the world has to offer. Ranking of ecological footprints shows which countries are ecologically most sustainable & which are running an ecological deficit. The average American has an ecological footprint 1.7 times larger than a person in Sweden, 3.8 times that of someone in Hungary or Costa Rica, & more than 9 times that of an individual in India. These averages however do hide inequalities within countries. According to the UN, more than 100 million people in rich nations suffer from poverty. Policies must be developed that promote consumption patterns which reduce our ecological footprint while meeting the needs of all people to enjoy a good quality of life. We also need to shift how we make decisions as consumers from thinking about means to thinking about ends. In other words, governments & businesses may collaborate to meet people's transportation needs by investing in improved public transport rather than just building new roads.

Organise differently: increase public participation while reducing corruption & perverse subsidies. How we organize ourselves & establish rules to govern our actions plays a major role in determining whether we become sustainable. Good governance requires reforming decision making processes to increase opportunities for public participation, including a wide variety of activities ranging from environmental impact assessment consultation hearings, to co-management of natural resources. In its deepest form, public participation seeks to involve civil society in all steps of planning, implementation & evaluation of policies & actions. Public participation can: Help to establish good pathways for sustainable development; Enhance understanding & relationships; Increase eagerness to participate, leading to better implementation of decisions; Enrich the community & build social capital. Reduce corruption, the misuse of power for private benefit or advantage, is also necessary to achieve sustainable development as it disregards public interest & warps competitive markets. Economies are 'managed' through a complex array of regulations, laws & market incentives. Tax structures, payments to producers, prices supports & the like can function as perverse subsidies that have detrimental effects on both the economy and the environment. They are also often distributionally regressive, benefiting mostly the wealthy often political interest groups while draining the public budget.

A Sustainable Approach

Sustainable development strategies often highlight interplay between local & global, developing & developed, & the need for co-operation within & between sectors. Solutions differ between places & times, depending on the mix of values & resources. Sustainable development emphasizes the need for:

Concern for equity & fairness: ensuring the rights of the poor & of future generations. Sustainable development is concerned with meeting the needs of the poor and marginalized portions of our population. The concepts of equity & fairness are prominent in many sustainable development definitions. One of the challenges in decision-making is how to protect the rights of the voiceless - future generations have no ability to speak on their own behalf or to protect their interests in decision-making processes. If development is to be sustainable, it must consider their interests.

Long-term view: applying the **Precautionary Principle**. In Western society during the past generation, most official long-term planning has been at most three to five years. Many international stock and currency traders now think of a few weeks as long term. Traditional Native American governance, focused on planning for 'the 7th generation today'. Goals & activities are designed with consideration for their impact on the next 7 generations into the future, leading to a planning horizon of 150 years. A planning horizon between these figures is both necessary & realistic. Some experts have suggested that as long as each generation considers the next - roughly 50 years - each succeeding generation will be taken care of. No generation can be expected to guarantee results it cannot foresee; but equally, none it is argued ought to be allowed to ignore those it can. In an interdependent world, complex interactions are leading to a startlingly high rate of innovation & change. In times of rapid change, the Precautionary Principle provides guidance. It states that when an activity raises threats of harm to the environment or human health, precautionary measures should be taken - even if some cause-and-effect relationships are not fully established scientifically.



Systems thinking: understanding the interconnections between the environment, economy & society. Viewing our human systems as operating within a larger world ecosystem is crucial for achieving a sustainable relationship with the environment, & assuring our own species' continued survival on the planet. Systems thinking requires us to understand that while there is only one Earth, it is composed of a multitude of subsystems all interacting with each other. A variety of models have been developed to explain the Earth's subsystems. When measuring our progress toward sustainable development, these models provide useful frameworks for choosing indicators. The differences between the models show the specific perspectives which groups bring to sustainable development and embody their differing values. These subsystems are connected by intricate feedback loops. The science of complexity suggests that in some systems a very small occurrence can produce unpredictable & sometimes drastic results through setting off a series of increasingly significant events. For some two centuries we have known that the Earth is a closed system with finite resources. There are no new resources. Each natural resource used by human beings - food, water, wood, iron, & so on - is limited by its sources (where they come from) & sinks (where they are disposed to). Resources ought not be removed faster than they can be renewed nor disposed of more quickly than they can be absorbed. Global warming & the ozone hole are examples of problems arising from attempts to dispose of resources faster than the environment can absorb them.

For More

see the United Nations Environment Programme at www.unep.org

Sustainable Development Timeline

1962: Silent Spring was published, a book many consider a turning point in the understanding of the interconnections between the environment, economy & social well-being.

1972: The United Nations Conference on the Human Environment in Stockholm considers the need for a common outlook & for common principles to inspire & guide the peoples of the world in the preservation & enhancement of the human environment.

1987: The World Commission on Environment & Development chaired by the Prime Minister of Norway, Mrs Gro Harlem Bruntland, publishes a report Our Common Future (The Bruntland Report) which brings the concept of sustainable development onto the international agenda. It also provides the henceforth most commonly used definition of sustainable development describing it as development which meets the needs of the present without compromising the ability of future generations to meet their own needs.

1989: The issues raised by Our Common Future are discussed at the UN General Assembly leading to passage of resolution 44/228 which calls for a UN Conference on Environment and Development. The UK Government produces a progress report on implementing sustainable development, Sustaining Our Common Future.

1990: The ideas in Sustaining Our Common Future are taken up in the UK's first comprehensive strategy, the White Paper on the Environment This Common Inheritance.

1992: Nearly 180 countries meet at the Earth Summit (UN Conference on Environment and Development) in Rio de Janeiro to discuss how to achieve sustainable development. The Summit agrees the Rio Declaration on Environment & Development which sets out 27 principles supporting sustainable development. Also agreed is a plan of action, Agenda 21, & a recommendation that all countries should produce national sustainable development strategies. The Earth Summit also establishes the UN Commission on Sustainable Development, which meets every year, as well as important UN bodies - the Framework Convention on Climate Change & the Convention on Biological Diversity. Towards Sustainability, the Fifth Environmental Action Programme of the European Union is adopted. The Programme seeks to integrate environmental concerns into other policy areas in order to achieve sustainable development.

1994: The UK becomes one of the first countries to produce a sustainable development strategy in response to the call made at Rio, Sustainable Development: The UK Strategy.

1997: The Labour Party wins the General Election & announces its intention to prepare a new strategy for sustainable development. A special UN conference is held to review the implementation of Agenda 21 (Rio+5). This repeats the call for all countries to have sustainable

development strategies in place - in particular by the time of the next review of Agenda 21 in 2002 (Rio+10). In Europe, changes to Articles 2 to 6 of the Treaty establishing the European Community are agreed in the Treaty of Amsterdam, give sustainable development a much greater prominence.

1998: In the UK, a consultation document, Opportunities for change & a summary leaflet for the general public are published. In addition, the Government consults on a set of headline indicators of sustainable development, Sustainability counts.

1999: In May, the Government launches its new strategy, A better quality of life - A strategy for sustainable development for the UK. Acts of Parliament devolve power to the new administrations in Scotland, Wales & from 2000, Northern Ireland. In December, Quality of life counts - Indicators for a strategy for sustainable development for the United Kingdom: a baseline assessment is published. This looks in more detail at the indicators of sustainable development contained in the strategy & provides a benchmark against which future progress can be measured. At the European Council in Helsinki, the European Commission is invited by the EU Heads of Government to prepare a proposal for a sustainable development strategy for Europe by June 2001.

2000: On 16 November, the National Assembly for Wales adopts its sustainable development Scheme A Sustainable Wales - Learning to Live Differently. This sets out how it is going to meet its legal obligations on sustainable development. Building a better quality of life - a strategy for more sustainable construction published by the Government.

2001: In January, the Government publishes its first of its annual review of progress towards sustainable development, Achieving a better quality of life, Government annual report 2000. The report on progress 2002 is published a year later, & the 2003 report is due shortly. Major agreements on sustainable development issues can be found on the UN Commission for Sustainable Development website at www.un.org/esa/sustdev

2002: The World Summit on Sustainable Development (WSSD) took place in Johannesburg. Although unable to reach consensus on some issues, the main outcomes are listed at www.johannesburgsummit.org

2003: February sees the launch of the Energy White Paper & Sustainable Communities Plan. In October the Better Buildings Summit is held, attended by 190 senior industry figures, the Deputy Prime Minister, & two Secretaries of State.

For more relevant to Construction, see Key Documents above. In particular, The UK Construction Industry: Progress towards more sustainable construction 2000-2003 is a useful summary of recent issues.

UK Government Approach

Sustainable Development Objectives

These are the overarching government objectives as set out in the A Better Quality of life (May 1999) & at www.sustainable-development.gov.uk

Social progress which recognises the needs of everyone. Everyone should share in the benefits of increased prosperity & a clean & safe environment. We have to improve access to services, tackle social exclusion, & reduce the harm to health caused by poverty, poor housing, unemployment & pollution. Our needs must not be met by treating others, including future generations & people elsewhere in the world, unfairly.

Effective protection of the environment. We must act to limit global environmental threats, such as climate change; to protect human health & safety from hazards such as poor air quality & toxic chemicals; & to protect things which people need or value, such as wildlife, landscapes & historic buildings.

Prudent use of natural resources. This does not mean denying ourselves the use of non-renewable resources like oil & gas, but we do need to make sure that we use them efficiently & that alternatives are developed to replace them in due course. Renewable resources, such as water, should be used in ways that do not endanger the resource or cause serious damage or pollution.

Maintenance of high & stable levels of economic growth & employment, so that everyone can share in high living standards & greater job opportunities. The UK is a trading nation in a rapidly changing world. For our country to prosper, our businesses must produce the high quality goods & services that consumers throughout the world want, at prices they are prepared to pay. To achieve that, we need a workforce that is equipped with the education & skills for the 21st century. We also need businesses ready to invest, & an infrastructure to support them.

UK Government Approach

Guiding principles & approaches

The Government's policies take account of 10 principles & approaches which reflect key sustainable development themes:

Putting people at the centre. Sustainable development must enable people to enjoy a better quality of life, now & in the future. In the words of the Rio Declaration, human beings are at the centre of concerns for sustainable development. They are entitled to a healthy & productive life in harmony with nature.

Taking a long term perspective. Sustainable development thinking cannot restrict itself to the life of a Parliament, or the next decade. Radical improvements have to begin now to safeguard the interests of future generations. At the same time we must meet today's needs eg people need warm homes, which, at present, means using predominantly fossil fuels.

Taking account of costs & benefits. Decisions must take account of a wide range of costs & benefits, including those which cannot easily be valued in money terms. In pursuing any single objective, we should not impose disproportionate costs elsewhere. Public values, the timing of costs & benefits & risks & uncertainties should be taken into account.

Creating an open & supportive economic system. Sustainable development requires a global economic system which supports economic growth in all countries. We need to create conditions in which trade can flourish & competitiveness can act as a stimulus for growth & greater resource efficiency.

Combating poverty & social exclusion. Eradicating poverty is indispensable for sustainable development. We must help developing countries to tackle widespread abject poverty. In this country, everyone should have the opportunity to fulfil their potential, through access to high quality public services, education & employment opportunities, decent housing & good local environments.

Respecting environmental limits. Serious or irreversible damage to the environment & resources poses a severe threat to global society. Examples are major climate change, overuse of freshwater resources, collapse of significant fish stocks. In these cases, there are likely to be limits which should not be breached. Defining such limits is difficult, so precautionary action needs to be considered.

Precautionary principle. The Rio Declaration says that 'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation'. This requires assessment of costs & benefits & transparent decision making.

Using scientific knowledge. When taking decisions, it is important to anticipate early on where scientific advice/research is needed, & to identify high calibre information sources. Where possible, evidence should be reviewed from a wide range of points of view.

Transparency, information participation & access to justice. Opportunities for access to information, justice & participation in decision making, should be available to all.

Making the polluter pay. Much environmental pollution, resource depletion & social cost occurs because those responsible are not those who bear the consequence. If the polluter, or ultimately the consumer, is made to pay for those costs, that gives incentives to reduce harm, & means that costs do not fall on society at large. At the same time, it may not always be possible for everyone to bear all such costs, particularly for essential goods & services.

For More

see www.sustainable-development.gov.uk

Benchmarking

The UK was one of the first countries in the world to produce a set of highly regarded sustainable development indicators. At the UK level progress has been reviewed through the 15 headline indicators in the Government annual reports *Achieving a better quality of life*, & indicators have also been reported on regularly on the sustainable development website & in *Quality of life barometer* leaflets.

The wider core set of indicators in *Quality of life counts* provided a baseline assessment in 1999 for the 15 headline indicators & 132 core indicators. The 15 headline indicators have been communicating progress on the current strategy. They are available, from www.sustainable-development.gov.uk, along with more information. They provide a high level overview of progress & to communicate the main messages for the public. Where a trend is unacceptable, the government is committed to adjusting policies accordingly, & will look to others to join it in taking action.

Owing to lack of comparable data, some headline & core indicators cover Great Britain, England & Wales, or just England. The devolved administrations have established indicators to reflect their own priorities & circumstances. The Scottish & Welsh indicators sets consist of 24 & 12 indicators respectively. A set of indicators for Northern Ireland are being developed. There is considerable overlap between the indicator sets, with, in most cases, indicators being identical or similar to those in the UK headline set or to those in the core set of indicators. More widely, there are now a considerable number of indicators used by central & local Government, by international organisations, by non-governmental organisations & by the private sector. For England & Wales at the local authority level, a menu of indicators *Local quality of life counts* was developed to assist in raising awareness & monitoring progress at local

level. The menu provided guidance on how to develop indicators, which where possible were consistent with indicators at the national level. The Audit Commission has built on this work & has produced & piloted a set of local quality of life performance indicators. Local authorities have drawn upon these & other indicators to create their own sets of indicators to measure progress against the objectives in their community strategy. The choice of indicators varies between authorities to reflect differing circumstances & priorities.

Industry has begun to recognise that monitoring & reporting on progress is vital. Key Performance Indicators, Environmental Performance Indicators, & the adoption of benchmarking are becoming increasingly commonplace. Companies are producing environmental & sustainability reports. Corporate social responsibility is becoming part of accepted business life.

Of the 15 headline indicators for sustainability 2 directly relate to construction: H14 – new homes built on previously developed land & H15 – waste arisings & management. M4I's sustainability working group report presents environmental performance indicators. This suite of 6 EPIs sets benchmarks for meeting environmental targets & provides a measurement tool. Industry-specific indicators of progress are published annually as *Construction Industry Headline KPI Pack*. A group of 10 companies is trialling sustainable construction indicators for company-level, developed as part of a former research contract (CIRIA report no.C563).

For More

see www.sustainable-development.gov.uk,
www.constructingexcellence.org.uk,
www.dti.gov.uk/construction/kpi,
www.constructionresearch.info &
www.ciria.org.uk

Research

The DTI has ceased to fund construction research through its Partners in Innovation research programme. The DTI innovation review has identified some funds to continue to support policy aims. Projects begun under PII will continue until their due completion dates. PII aimed to demonstrate & develop new & innovative technologies that can contribute to sustainable practice, or support projects that develop the tools & understanding necessary to make sustainability more pervasive. Thus recently funded projects included work on creating key performance indicators & on proving the business case for sustainable construction.



Set up to reduce the environmental impact of primary aggregates extraction, the Aggregates Levy Sustainability Fund is initially running for two years & is being financed by the £1.60/tonne Aggregates Levy, which came into force on April 1st 2002. In addition to channelling revenue back into communities affected by heavy aggregate extraction, & promoting less damaging extraction & processing methods, the aim is also to reduce demand for primary aggregates through research into alternatives, & encouraging the recycling & re-use of aggregates. One aspect of work to be addressed by this fund, is Minimising the demand for primary aggregates. This is being distributed through the Waste & Resources Action Programme (WRAP) & the DTI's Construction Sector Unit (CSU). CSU will deliver the research programme element, which has a budget of about £700,000 pa for FY 2003/04.

For More

see www.dti.gov.uk/construction/research & www.pii.org.uk. A project database & archive can be found at www.constructionresearch.info On aggregates see www.defra.gov.uk & the Waste & Resources Action programme www.wrap.org.uk

Links

Due to the nature of sustainable development, it encompasses many different issues. The links below are not exhaustive, but a sample of useful organisations when working in the construction sustainable development arena.

www.bcsa.org.uk

CSA is the national organisation for the constructional steelwork industry: its Member companies undertake the design, fabrication and erection of steelwork for all forms of construction in building & civil engineering.

www.ceramfed.co.uk

BCC is a trade association that provides support for UK manufacturers of ceramics, including tableware, refractories, bricks, tiles & sanitaryware, & the suppliers of related materials.

www.cibse.org

With a membership of 15,000, one fifth of which is overseas, CIBSE (Chartered Institution of Building Services Engineers) is an international body which represents & provides services to the building services profession. The Institution has two main functions: It confers an internationally recognised badge of quality. It undertakes a wide range of learned society activities ranging from producing information services & acknowledged industry good practice publications in its series of Guides & other publications, to running a range of events, & to providing extensive networking activities through a series of regional & special interest groups.

www.constructionconfederation.co.uk

the leading representative body for contractors, representing some 5,000 companies who in turn are responsible for over 75% of industry's turnover. Its aim is to achieve the best possible economic and political climate so that construction can thrive.

www.wellbuilt.org.uk

a site about sustainable construction for Local Authorities supported by DTI & previously promoted by Local Government Task Force. The site aims to build up a network of Local Authority staff who are interested in and undertaking more sustainable construction, including exchange of information on best practice, worst practice, Action Plans and links to helpful organisations

www.englishpartnerships.co.uk

Partnerships is the national regeneration agency, supporting high quality sustainable growth across the country. We are a key delivery agency for the urban renaissance & the government's new Sustainable Communities agenda. This means working in partnership to help make England a better place to live. Its 4 key areas of activity are: Sustainable Regeneration; Housing; Strategic Brownfield Redevelopment; Best Practice.

www.ice.org.uk

The Institution of Civil Engineers (ICE) seeks to advance the knowledge, practice & business of civil engineering, to promote the breadth and value of the civil engineer's global contribution to sustainable, economic growth, & ethical standards, and to include in membership all those involved in the profession.

www.steel-sci.org

The objective of The Steel Construction Institute is to develop and promote the effective use of steel in construction.

www.architecture.com

This site is an extensive portal on the built environment, and is provided by the Royal Institute of British Architects

Links

www.bifm.org.uk

BIFM is the UK's lead institute representing the interests of those who practise Facilities Management & those who work in organisations supplying Facilities Management related goods or services.

www.aecb.net

Formed in 1989, the AECB encourages greater environmental awareness within the building construction industry. The AECB is the leading independent environmental building trade organisation in the UK. The Association, its network of members & publications, provide a knowledge enabling companies to help the environment. Its membership encompasses most sectors of building construction and management.

www.wellbuilt.org.uk

a site about sustainable construction for LoLocal Government Task Force. The site aims to build up a network of Local Authority staff who are interested in and undertaking more sustainable construction, including exchange of information on best practice, worst practice, Action Plans and links to helpful organisations

www.steel-sci.org

The objective of The Steel Construction Institute is to develop and promote the effective use of steel in construction.

www.architecture.com

This site is an extensive portal on the built environment, and is provided by the Royal Institute of British Architects.

www.brampton-ecohouse.org.uk

The Brampton ECO House was the millennium project of Brampton Rural Housing Society. It was completed on time & opened by Lord Inglewood MEP (June 2000). Since October 2001 it has been occupied by a family who are delighted with their house & say it is warm throughout winter and very economical .

www.ice.org.uk

The Institution of Civil Engineers (ICE) seeks to advance the knowledge, practice & business of civil engineering, to promote the breadth and value of the civil engineer's global contribution to sustainable, economic growth, and ethical standards, & to include in membership all those involved in the profession.

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Partnerships is the national regeneration agency, supporting high quality sustainable growth across the country. We are a key delivery agency for the urban renaissance & the government's new Sustainable Communities agenda. This means working in partnership to help make England a better place to live.

www.acenet.co.uk

The Association of Consulting Engineers (ACE) is the UK's leading trade association for engineering, technical and management consultancies. ACE represents over 700 member companies that cover the entire range of construction, environmental & infrastructure industry. ACE's membership includes some of the largest companies in the sector, employing several thousand employees, as well as many smaller niche firms.

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Links

www.bre.co.uk

BRE is the UK's leading centre of expertise on buildings, construction, energy, environment, fire and risk. They provide research-based consultancy, testing & certification services to customers world-wide.

www.brick.org.uk

The Brick Development Association (BDA) represents the interests of UK & Irish manufacturers of clay bricks & pavers. It is the voice of the industry with a membership which makes up well over 80% of the UK & Ireland's total brick making capacity.

www.biat.org.uk

British Institute of Architectural Technologists (BIAT) is the professional Institute representing over 6,500 people working and studying in the field of architectural technology in the UK & overseas. Since its establishment in 1965 BIAT has become recognised as the leading body in architectural technology, qualifying Architectural Technologists and Architectural Technicians. Members of the Institute are continually recognised and acknowledged as fulfilling a pivotal role within the construction industry.

www.bsi.org.uk

Founded in 1901, the BSI Group is a leading global provider of professional services to organizations worldwide. BSI Group provides independent certification of management systems & products Commodity inspection; Product testing; Development of private, national and international standards Management systems training; Information on standards & international trade; Its work includes British Standards: these cover every aspect of the modern economy from protection of intellectual property to technical specifications for personal protective equipment. BSI has extensive links with National Standards Bodies (NSBs) throughout the world.

www.bsria.co.uk

BSRIA, the Building Services Research & Information association provides independent authoritative research, product testing, consultancy, management & market intelligence.

www.cabe.org.uk

The Commission for Architecture & the Built Environment is an executive non-departmental public body. It aims to inspire people to demand more from their buildings and spaces. It believes well designed homes, streets, parks, work-places, schools & hospitals are the fundamental right of everyone. It uses its skills and resources to work for a higher quality of life for people & communities across England, with particular concern for those living in deprived areas. They do this by making the case for change, gathering hard evidence, providing education opportunities & through direct help on individual programmes & projects.

www.thecarbontrust.co.uk

The Carbon Trust is an independent not for profit company set up by the Government with support from business to take the lead on low carbon technology and innovation in the UK. Part of the UK's Climate Change Programme, the Carbon Trust encourages & promotes the development of low carbon technologies (both energy efficient technologies & low carbon energy supplies) to support the transition to a low carbon technology in the UK. Key to this aim is its support for UK businesses in reducing carbon emissions through funding, supporting technological innovation & by encouraging more efficient working practices.

www.chpa.co.uk

The Combined Heat and Power Association works to promote the wider use of combined heat and power & community heating. Clean efficient Combined Heat & Power (CHP) is already in use on close to 1,400 locations around the UK.

Links

www.dqi.org.uk

The Design Quality Indicator (DQI) is a new method for assessing the design quality of buildings. It has been developed by CIC in order to enable all stakeholders involved in the built environment to gain more value from the design of buildings.

www.ciria.org.uk

CIRIA is an independent and authoritative broker of construction research and innovation in the UK. Membership includes all construction stakeholder groups and covers both the supply and demand sides of the industry, as well as the majority of relevant public sector champions and regulators.

www.bconstructive.co.uk

An information resource to help young adults enter into careers within the construction industry

www.citb.co.uk

CITB-ConstructionSkills provides assistance in all aspects of recruiting, training and qualifying the construction workforce. They also work with partners in industry and government to improve the competitiveness of the industry as a whole

www.cica.org.uk

The Construction Industry Computing Association is dedicated to the effective use of information technology in the construction industry. It is owned by its members and directed by a board elected from the membership. CICA's strength is the combined expertise of its diverse membership which is supported by a team of consultants recognised as the leading IT analysts for the construction industry.

www.construction.co.uk

A website of construction research organisations working together to promote best practice in the construction industry

www.clientsuccess.org

The website for The Clients' Charter. By signing up to the Charter, construction industry clients will be making a clear statement of their commitment to improve their own performance. Members of the Confederation of Construction Clients are required to commit to the Clients' Charter

www.cic.org.uk

The Construction Industry Council represents over 500,000 professionals working for, and in association with, the construction industry and more than 25,000 construction firms. It is the representative forum for the industry's professional bodies, research organisations and specialist trade associations.

www.constprod.org.uk

The Construction Products Association acts as a single, influential voice for manufacturers and suppliers of construction products. Its aim is to build a growing, profitable and sustainable future for the construction products industry.

www.aepuk.com

The Association of Electricity Producers consists of mainly companies that generate electricity for the wholesale electricity markets in the UK. Some members provide support services to the industry. Between them, they represent almost all of the technologies used for making electricity in the UK. They include production from coal, oil, gas, nuclear power, wind, wave, hydro and various energy-from-waste technologies. The power plants involved range from small renewable energy and combined heat and power schemes, to large conventional power stations.

www.energynetworks.org

ENA represents the licensed gas and electricity transmission and distribution companies in the UK.

Links

www.actionenergy.org.uk

Action Energy, a government-funded programme, helps businesses and public sector organisations save money through energy saving. From simple tips to in-depth advice and on-site support, they can show you how to make a big difference to both your bottom line and the environment.

www.est.org.uk

The Energy Saving Trust was set up by UK Government after the 1992 Rio Earth Summit and is one of the UK's leading organisations addressing the damaging effects of climate change. Our goal is to achieve the sustainable and efficient use of energy, to cut the carbon dioxide emissions which are the key contributor to global warming. We are a non-profit organisation funded by governments and the private sector.

www.esauk.org

The Environmental Services Association is the Trade Association for companies providing waste management and associated environmental services.

www.forumforthefuture.org.uk

The mission of Forum for the Future is to accelerate the building of a sustainable way of life, taking a positive, solutions oriented approach.

www.constructingexcellence.org.uk

Constructing Excellence aims to deliver individual, corporate and industry excellence in construction. It is the implementation body for the Rethinking Construction agenda. It includes construction Best Practice to provide support to individuals, companies, organisations & supply chains seeking to improve the way they do business.

www.builders.org.uk

The National Federation of Builders represents over 3,000 medium sized contractors & smaller builders throughout England and Wales.

www.bca.org.uk

The British Cement Association (BCA) is the trade and research organisation that represents the interests of the UK's cement industry

www.concretecentre.com

By providing a focal point for the entire UK concrete sector, The Concrete Centre aims to assist all those who design and construct in concrete whether they work for national or local government, client bodies, architectural practices, civil and structural engineering consultancies, main and specialist contractors or housebuilders

www.inreb.org

The INREB Faraday Partnership was launched in November 2001 to create a national focus for industry projects, technology transfer and research projects on the integration of new and renewable energy in buildings.

www.iema.net

The Institute of Environmental Management and Assessment (IEMA) is a not-for-profit organisation established to promote best practice standards in environmental management, auditing and assessment. With over 8,000 individual and corporate members, the IEMA is now the leading international membership-based organisation dedicated to the promotion of sustainable development, and to the professional development of individuals involved in the environmental profession, whether they be in the public, private or non-governmental sectors.

www.integerproject.co.uk

INTEGER is a partnership committed to delivering the benefits of step-change innovation in housing and the built environment. Their aim is to ensure that buildings meet the sustainability challenges of the 21st century in social, economic and environmental terms.

Links

www.l-i.org.uk

The Landscape Institute is the Chartered Institute in the UK for Landscape Architects, incorporating designers, managers and scientists, concerned with enhancing and conserving the environment. The Institute makes sure its members give the best possible service in the planning, design and management of open spaces, whether in rural or urban locations.

www.nbsservices.co.uk

NBS is the publisher of the National Building Specification. Owned by the Royal Institute of British Architects NBS creates innovative IT solutions and delivers high quality products for construction industry professionals.

www.thencbs.co.uk

The National Centre for Business and Sustainability (NCBS) is a solutions-oriented consultancy, set up to help organisations improve their environmental and social performance in ways which make business sense.

www.occupier.org

Occupier.org is committed to encourage a programme of high quality research. They contend that connection between corporate real estate and facilities on the one hand with organisational output and business performance on the other must be made. They believe occupiers must, for example, be able to demonstrate value for money and business effectiveness while the supply side needs to be able to deliver these value-added buildings and services, both over the short and long term.

www.rias.org.uk

The Royal Incorporation of Architects in Scotland was founded in 1916 as the professional body for all chartered architects in Scotland and is the foremost architectural professional institute in Scotland dealing with architecture and the built environment.

www.iucn.org

IUCN is the World Conservation Union. Its members are from some 140 countries including over 70 States, 100 government agencies, and 750-plus NGOs. More than 10,000 internationally-recognised scientists and experts from more than 180 countries volunteer their services to its six global commissions. It runs some 500 projects across the world. Its mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

www.riba.org

The Royal Institute of British Architects, one of the most influential architectural institutions in the world, has been promoting architecture and architects since being awarded its Royal Charter in 1837. Then the RIBA's remit was 'the general advancement of architecture'. Today's mission statement continues to embody these sentiments. The RIBA is a member organisation, with 30,000 members, headed by a president George Ferguson, and 170 staff.

www.rics.org.uk

RICS is the home of property professionalism worldwide. This is an information site for property professionals and users of their services. RICS has over 110 000 members globally, dedicated to promoting excellence and safeguarding public interest in all property related matters.

www.sdgateway.net

The SD Gateway integrates the on-line information developed by members of the Sustainable Development Communications Network. In addition to over 1,200 documents available, they provide services such as a calendar of events, a job bank, the Sustainability Web Ring, a roster of mailing lists and news sites dealing with sustainable development.

Links

www.scl.org.uk

The Society of Construction law has 1560 members and through meetings, lectures and social events promotes interest in construction law.

www.sustainabilityworks.org.uk

Sustainability Works is for anyone interested in adopting a sustainable approach to housing development and regeneration. That may include housing associations, local authorities, consultants, contractors and developers.

www.sd-commission.gov.uk

The Sustainable Development Commission main role is to advocate sustainable development across all sectors in the UK, review progress towards it, and build consensus on the actions needed if further progress is to be achieved.

<http://sd-online.ewindows.eu.org>

The role of Sustainable Development Online (SDO) is to map the constant change and growth of material on sustainable development. It consists of links to and information covering the broad subject of sustainable development.

www.sustainable-development.gov.uk

The website of the UK government's approach to sustainable development. It consists of policy and strategy documents, information, links and consultations.

www.aps.org.uk

The Association of Planning Supervisors sets out to create the principles of best practice in fulfilling the requirements of the Construction (Design Management) Regulations 1994. It strives to achieve this by publishing Practice and Guidance notes along with Model documents and procedures and also by providing practice and legal advice to its members on issues pertaining to the CDM Regulations and Health & Safety generally. APS members are encouraged to provide a proportionate and effective service so that the benefits of the Regulations can be fully realised

www.ciob.org.uk

The Chartered Institute of Building (CIOB) is the leading professional body worldwide for managers in construction.

www.endsreport.com

Building on over 25 years of experience The ENDS Report is widely viewed as the UK's leading journal of environmental policy and business. The ENDS Report is published monthly by Environmental Data Services Ltd (ENDS).

www.housingcorp.gov.uk

The Housing Corporation is a Non Departmental Public Body, sponsored by the Office of the Deputy Prime Minister. Its role is to fund and regulate housing associations in England. Other bodies perform similar roles in Northern Ireland, Scotland and Wales.

www.plumbers.org.uk

The Institute of Plumbing is the UK's professional body for plumbers and others in the plumbing industry. It has a membership of 12000

www.ices.org.uk

The Institution of Civil Engineering Surveyors is the qualifying body for civil engineering specialists working in: commercial management; geospatial engineering. Its aim is to improve members services to the public and to encourage the high standards

www.ice.org.uk

The Institution of Civil Engineers (ICE) seeks to advance the knowledge, practice and business of civil engineering, to promote the breadth and value of the civil engineer's global contribution to sustainable, economic growth, and ethical standards, and to include in membership all those involved in the profession.

www.rtpi.org.uk

The Royal Town Planning Institute exists to advance the science and art of town planning for the benefit of the public.

Links

www.unep.org

The United Nations Environment Programme. See also www.unep.net for its Environment Network, a global portal for environmental information based on themes and regions.

www.usgbc.org

The United States Green Building Council is a coalition of building industry leaders working to promote buildings that are environmentally responsible, profitable and healthy places to live and work.

www.business-in-environment.org.uk

Business in the Environment inspires businesses to work towards environmentally sustainable development as a strategic, mainstream business issue

www.driversjonas.co.uk

Drivers Jonas is a private and independent partnership of commercial property consultants. They are a multi-discipline chartered surveying practice numbering approximately 385 partners and staff.

www.englishpartnerships.co.uk

EnglishPartnerships work in partnership with interested bodies to help make England a better place to live, focusing on four key areas of activity: Sustainable Regeneration; Housing; Strategic Brownfield Redevelopment; Best Practice.

www.wbcasd.org

The World Business Council for Sustainable Development (WBCSD) is a coalition of 170 international companies united by a shared commitment to sustainable development via the three pillars of economic growth, ecological balance and social progress.

www.worldwatch.org

The Worldwatch Institute is an independent research organization working for an environmentally sustainable and socially just society.

www.wrap.org.uk

WRAP (the Waste & Resources Action Programme) is a not-for-profit company supported by funding from DEFRA, the DTI and the devolved administrations of Scotland, Wales and Northern Ireland. It is working to promote sustainable waste management by creating stable and efficient markets for recycled materials and products.

www.wwf-uk.org

The mission of WWF - the global environment network - is to stop the degradation of the planet's natural environment, and to build a future in which humans live in harmony with nature. WWF-UK is currently running the Sustainable Homes campaign, pressing for higher environmental standards for buildings in the UK.

www.europrosper.org

Europosper is the European Programme for Occupant Satisfaction, Productivity and Environmental Rating of buildings. It certifies existing building energy performance.

www.wri.org

The World Resources Institute is an independent nonprofit organization with a staff of more than 100 scientists, economists, policy experts, business analysts, statistical analysts, mapmakers, and communicators working to protect the Earth and improve people's lives